

Grass Reclamation Demonstration, Fremont County, WY

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Objective: Demonstration of grass species for re-vegetation

County: Fremont County

Average Annual Precipitation: 5 – 9 inches

MLRA: 32, Northern Intermountain Desertic Basins

Dominant Soil Type: Ethete Loam

Elevation: 4980 ft

Site Preparation: Disc and harrow

Seeding Date: April 15, 2009

Seeding Method: Small broadcaster seeder, then roller pack

Acres Seeded: 0.7 acre total

Previous Site History: Urban area

Herbicide: None applied

Irrigation: None

Grazing: Wildlife only (rabbits and occasional deer)

Monitoring: Sept 2012, Oct 2014, June 2017, July 2019



Fig. 1. Roller packing after seeding.

Introduction:

The field planting goal was to demonstrate the establishment and characteristics of grass species for use in reclamation, conservation practices, or lawns. The planting site is

Table 1. Seeded species and their seeding rate.

Common Name	Scientific Name	Cultivar	lbs PLS/acre
Thickspike wheatgrass	<i>Elymus lanceolatus</i>	Critana	6
Western wheatgrass	<i>Pascopyrum smithii</i>	Rosana	6
Basin wildrye	<i>Leymus cinereus</i>	Trailhead	6
Russian wildrye	<i>Psathyrostachys juncea</i>	Bozoisky	6
Slender wheatgrass	<i>Elymus trachycaulus</i>	Pryor	6

along an old railroad grade that was converted to a walking trail in Riverton. Soil was relatively poor quality, rocky, and probably had compaction issues due to years of urban uses. Soil was tilled prior to seeding, then roller packed following broadcast seeding to increase seed to soil contact (Fig 1). The site was mowed regularly for maintenance but no irrigation or weed management has occurred.

Results:

In September 2012, only five months after planting, all seeded species had a fair, good, or excellent stand ratings (Table 2). Slender wheatgrass had the excellent rating for both stand and vigor, which is characteristic of this quick establishing species. In 2012, all species were approximately eight inches tall but had a fair to poor ability to spread and were not producing seed.

By 2014, stand ratings for all species were poor or very poor but, where species persisted, they had fair to good vigor. In 2017 and 2019, seeded species had canopy covers from 1% to 40%. Basin wildrye had the highest canopy cover (40%) while slender wheatgrass, a short-lived perennial, and thickspike wheatgrass had the lowest canopy cover. Western wheatgrass and Russian wildrye persisted but were patchy and had low canopy cover in 2017 and 2019. Basin wildrye was seeded next to a building and may be benefiting from the shade and water runoff from the building. The site was mowed to a four-inch height causing species to not produce seed. Weed encroachment by kochia and cheatgrass may have also contributed to the species decline over time.

This plantings site is a harsh environment - low precipitation, poor soils, repeated mowing and weed encroachment. Even with the site stresses, Russian wildrye was able to persist (Fig 3), and basin wildrye maintained relatively high canopy cover over time (Fig 4).

Table 2. Evaluation summary for seeded species.

Species	2012 Stand & Vigor	2014 Stand	2014 Vigor	2017 Cover (%)	2019 Cover (%)	2019 Density (plants/ft ²)
Thickspike wheatgrass	Good	V. Poor	Fair	5	1	trace
Western wheatgrass	Fair	Poor	Fair	10	10	0.1
Basin wildrye	Good	Poor	Fair	35	40	3.0
Russian wildrye	Fair	Poor	Good	15	10	0.1
Slender wheatgrass	Excellent	V. Poor	Good	5	1	trace

Summary:

- Slender wheatgrass had excellent establishment but decreased over time, which is characteristic of this species.
- Basin wildrye had the highest canopy cover in 2017 and 2019.
- All seeded species decreased in stand and vigor ratings and canopy cover over time. The combination of mowing and weed encroachment may have contributed to their decline.
- Low growing, sod forming species such as blue grama (*Bouteloua gracilis*) and buffalograss (*Bouteloua dactyloides*) may have performed better where mowing occurs regularly.



Fig. 2. Seeded species five months after seeding, 2012.



Fig. 3. Thickspike wheatgrass (right) and Russian Wildrye (left) are the green vegetation. Brown vegetation are weeds, 2017.



Fig. 4. Basin wildrye had the highest canopy cover in 2019 and appeared to benefit from the shade.

